

### **Abstract of the Invention**

A cathode for use in a deposition chamber for the plasma enhanced deposition of semiconductor materials onto one or more webs of substrate material. The cathode is a planar fountain cathode which serves the dual functions of (1) an electrode for the plasma deposition process and (2) a fountain-like distribution conduit for the flow of fresh reaction gas to and for the evacuation of the spent reaction gas from the plasma region to maintain a uniform, constant pressure plasma reaction. The gas outlets of the inventive cathode are covered by gas dispersion plates which prevent direct, line-of-sight, flow of the process gases to the adjacent deposition substrate and more uniformly distributes the gases flowing into the plasma region between the cathode and the substrate.

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